

CHAPTER 3

SECTIONS 3.1 – 3.11

ELECTRIC/ELECTRONIC EQUIPMENT AND COMPONENTS

SECTION 3.1

3.1 Antennas and Antenna Components

3.1.1 Receipt and Inspection Requirements

a. Packaged Equipment: Inspect packaged Antenna and component containers for the presence and legibility of markings (see subparagraph 3.1.3 d); for obvious signs of damage, deterioration, or distortion; for correct preservation-packaging; for proper blocking and bracing and for pink or white humidity indicators. Antennas that require A.C. power should be inspected in accordance with the technical data accompanying the equipment. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable Material Representative (MATREP) or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.1.3 a. Report all equipment damage, excessive wear, insufficient preservation-packaging, or insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.1.2 Periodic Inspection

a. Periodicity. Inspect all Antenna and Antenna components annually. Equipment packaged to method 50 shall be inspected for pink or white humidity indicators every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See paragraph 3.1.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.1.3.

Replace desiccant and humidity indicators as required.

3.1.3 Packaging/Preservation for Delivery

a. Preservation-Packaging. Antenna equipment requires Level A protection. Preservation/packaging is in accordance with MIL-STD-2173-1, Methods 10, 20, 30, 40 and 50 and MIL-E-17555.

b. Responsibility. The shipper shall be responsible for providing correct packaging. If that activity is unable to comply with these requirements, it shall turn in the item through the supply activity, which will then bear the responsibility of providing proper preservation and packing. Incorrect or damaged packaging will be reported per subparagraph 3.1.1.

c. Packing. Packing will be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. The shipping container will be marked in accordance with MIL-STD-129 and MIL-E-17555. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on antenna and antenna component containers (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings on Method 50 packages: "CAUTION. REMOVE PACKAGING, TAPE, DESICCANT AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Technical Manuals. The location of the technical data or manuals should be marked on the packing list and shipping container.

(e) Classified Shipments. Do not affix packing lists to outside of the container for classified material. Forward in accordance with Departmental Regulations.

(f) Dimensions. Mark the outside dimensions for all containers having any dimension of 72 inches or greater.

(g) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(h) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items should be marked by means of a "FRAGILE" label.

3.1.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special handling Procedures. Handle antennas with extreme care, especially when unpackaged. Antenna parts are critical and repair of even slight damage is very expensive. Never lift antennas by the elements or a single point on the frame. Antenna reflectors and components must be anchored to a pallet or skid for local handling and storage. Make sure anchoring devices do not put pressure on antenna elements. Cushion smaller antenna components in open containers.

c. Safety Requirements. No special requirements.

3.1.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c	d	

a - Store critical antenna sections and pedestals which should be packaged Method 50, but are not, in a controlled humidity area. This includes non-RFI equipment. **DO NOT** store equipment outside.

b - Store antenna horns and elements in a heated warehouse, even when correctly preserved-packaged (Method 30). This includes non-RFI equipment.

c - Store components correctly packaged Method 50 and antennas requiring only physical protection in an unheated warehouse. **DO NOT** remove desiccant. Leave humidity indicators accessible for periodic checks.

d - If antenna size and lack of storage space force outside storage, the antennas must be covered and well protected from the weather. If at all possible, this outside storage should be limited to antennas which require only physical protection and which are completely crated.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store classified equipment and/or classified technical manuals in a secure space.

c. Shelf Life. Generally, antennas are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.1.2. Consult cognizant MATREP or technical manual for detailed requirements.

d. Special Storage requirements. Some radar antennas need A.C. power during storage.

3.1.6 Transportation

a. General. Height, width, and fragility considerations may require special carriers. Direction for movement of large antennas should be referred to the appropriate Transportation Officer. Caution the carrier about load height. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Ship classified material in accordance with shipping regulations. Ship classified technical data on separate cover.

c. Loading. **DO NOT** use antenna elements/frames as tie-down points to secure a load. Severe damage has been caused by this practice.

d. Carriers.

(1) Over the Road. The size of some antennas may restrict the type of vehicle used to carry them. State and local authorities may require special permits and

right-of-way clearances. Special circumstances should be referred to the appropriate Transportation Officer.

(2) Rail. Size of load may dictate special flat cars. Do not hump under any circumstances.

(3) Water. May be restricted to break bulk carriers due to size.

(4) Air. May require special airlift arrangements due to size.

SECTION 3.2

3.2. Batteries, Lead-Acid Storage

3.2.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect containers or cell crates, sheathing, anchoring hardware, blocks and braces, and any other protective devices, for signs of damage. Examine the packing cases for signs of jar leakage or loss of electrolyte by spillage in transit. Any material not meeting Level A preservation and packing must be brought up to those standards as soon as possible. Inspection does not require opening of containers or cell crates. Report any signs of damage to the applicable MATREP or the Item Manager.

3.2.2 Periodic Inspection

a. Periodicity. Inspect batteries with electrolyte each month. Batteries without electrolyte do not require inspection as long as the container has not been damaged.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.2.3. Make a note of any damage and its location.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the applicable MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.2.3.

3.2.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Lead-acid submarine batteries will be preservation-packaged Level A in accordance with DOD-B-24541.

b. Responsibility. The shipper shall be responsible for providing correct packaging. If that activity is unable to comply with these requirements, it shall turn in the item through the supply activity, which will then bear the responsibility of providing proper preservation and packing. Incorrect or damaged packaging will be reported per subparagraph 3.2.1.

c. Packing. Packing shall be Level A in accordance with DOD-B-24541. The packaged battery elements or cells are packed in secure wooden boxes or cell crates that are specifically designed to provide mechanical support.

The tops of packing cases containing spare cells or elements will be painted gray. A copy of the approved instructions for putting "uncharged and dry" cells into service and a copy of the approved TVG curve and data sheet should be packed with each spare cell or element

Cell jumper assemblies and associated hardware will be packaged separately from other hardware. Cell jumper assembly hardware items, except for the special bolts, shall be installed on the assembly.

Shipping containers shall have case liners conforming to MIL-L-10547. The total weight of wood, wood cleated, or triple-wall corrugated containers will not exceed 200 lbs. Wood and plywood containers shall be closed, strapped, or banded for portable batteries.

Fiberboard containers shall be closed, waterproofed, and reinforced with tape.

d. Marking.

(1) Normal. The shipping container shall be marked in accordance with MIL-STD-129 and DOD-B-24541. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings to be used on containers of batteries (as applicable) are:

(a) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(b) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark container with "THIS END UP" and arrows indicating the proper orientation.

(c) Multiple-Trip Containers. Multiple trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Container Removal. Crates or boxes shall be marked "FRONT" or "OPEN SIDE", as appropriate, to prevent damage when unpacking.

(f) Battery Types. Battery types will be plainly marked directly under the description of contents, as shown below:

- * WET BATTERY - CHARGED
- * UNFILLED BATTERY
- * UNFILLED BATTERY - NOT CHARGED
- * UNFILLED BATTERY - CHARGED
- * DRY BATTERY - CHARGED

(g) Identification Label. Each battery shall be provided with an electrolyte resistant label permanently attached to one side of the battery container.

(h) Instruction Tag. An instruction tag shall be attached to each charged and dry battery. The instruction tag shall provide instructions for placing the battery into service, for charging the battery, and for its use and care.

(i) Hazardous Warning Tags. Each battery shall be provided with an electrolyte-resistant "HAZARDOUS WARNING" label permanently attached to the top of the battery. The following warning label or the current hazardous label required by the OSHA and designated by the Battery Council International (BCI) applies to all batteries under specification:

**"HAZARDOUS WARNING
DO NOT REMOVE THIS TAG"**

Lead-acid batteries generate **EXPLOSIVE GASES**. Keep sparks, flames, and lighted tobacco products away from battery. When charging or using battery in an enclosed space, provide ventilation.

Lead-acid batteries contain **SULFURIC ACID**. If acid contacts eyes, skin, or clothing, flush immediately with large amounts of water. Also, in case of eye contact, see a physician immediately.

3.2.4 Handling

a. Special Handling Equipment and Tools. Lifting devices and items such as spare jars, special tools, bolts, nuts, and washers are needed to handle battery cells.

b. Special Handling Procedures. Take care to prevent breakage of jars and covers or damage to other parts. Under no circumstances shall jars be dragged on their bottom edges. Always move using the installed feet.

c. Safety Requirements. No special requirements.

3.2.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a			

a - STORAGE ENVIRONMENTAL LIMITATIONS:

Dry-Charged Cell. Store in a clean, dry, well-ventilated warehouse with a temperature between 0 and 130°F. When refrigeration is unavailable, dry batteries should be stored in the coolest available space, where they are not subjected to dampness or large temperature fluctuations.

Wet-Charged Cell. Fully charged wet cells for submarine use shall not be stored in a warehouse. Fully charged cells shall be stored in a battery shop where charging facilities are available. If the cells cannot be stored as required, store in an area that affords the next best level of protection, and notify the Inventory Manager.

NOTE

If batteries cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. Keep spare cells and elements in their packing cases unless there is reason to believe that damage has occurred.

b. Segregation. Submarine storage battery cells and elements in their dry state are inert and present no storage compatibility problems.

c. Shelf Life. The shelf life of complete cells and replacement elements shipped in the dry condition is indefinite when packaged, packed and stored as specified.

d. Special Storage Requirements. None.

3.2.6 Transportation

a. General. Dry condition (without electrolyte in the cells): National Motor Freight Classification 60720 and Uniform Freight Classification 34120. The safety precautions for submarine storage battery elements or cells during transit for cells in the dry condition are the same as those which apply to large heavy wooden boxes containing fragile items. The boxes shall be well secured, top and bottom, to prevent shifting or movement. The boxes shall remain in the upright position at all times.

During transit this material is to be handled as fragile cargo. Ensure that blocking and bracing are adequate to preclude damage.

b. Special. Advise the appropriate Transportation Officer of any unique or unusual requirement. The shipping configurations of the submarine storage battery are:

(1) That which consists essentially of an assembly of the plates and elements is packaged as a single unit.

(2) That which consists of a battery element assembled into a battery jar is also packaged as a single unit.

(3) The battery jar is also packaged as a single unit.

c. Loading. No special loading requirements.

d. Carriers.

(1) Over the Road. Shipments via truck transport will be tendered only to heavy-hauler specialized motor carriers. Batteries should be shipped in temperature controlled, van-type carriers (motor carriers), with air-ride suspension due to the fragile nature of the equipment. The temperature must be maintained below 86°F. General commodity motor carriers will not be used.

(2) Rail. SECNAV Message 1921102 April 72 suspended rail shipments of battery cells and elements. OTHER THAN SHORT DISTANCE TRANSFERS WITHIN NAVAL SHIPYARDS, RAIL SHIPMENT OF BATTERY CELLS AND ELEMENTS IS STRICTLY PROHIBITED.

(3) Water. May be used depending on priority and required delivery date.

(4) Air. May be used depending on priority and required delivery date.

SECTION 3.3

3.3 Cable, Cord and Wire Assemblies, Electric

3.3.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect equipment to make sure it meets Level A preservation-packaging and packing standards. Inspection shall be limited to a visual inspection of the markings and for damage, rotting, or insect infestation of the wood and rusting of steel. Report damage to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.3.2 Periodic Inspection

a. Periodicity. Inspect all cable annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.3.3. Make a note of the location and the damage.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect the cable for cuts and cracks in the insulation or bruises and damage caused by storage, dirt, oil, or other substances. Make a note of the location and the damage, if any.

If the cable is damaged, report the damage to the MATREP or Inventory Manager.

If signs of corrosion appear on any cable armor, clean and apply a coat of zinc chromate primer to all corroded areas.

After inspection, reseal the packaging and packing to prevent damage.

3.3.3 Packing/Preparation for Delivery

a. Preservation-Packaging. Preservatives are not required for cable. Level A protection in accordance with MIL-C-915 and MIL-C-12000 is required. Packaging of cable, cord and wire assemblies shall be accomplished in accordance with the requirements of the applicable commodity specification. Material is furnished wound on reels or spools, or in coil form. Reels are designated as "single trip" and "reusable."

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then

bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.3.1.

c. Packing. Packing shall be Level A in accordance with MIL-C-915 and MIL-C-12000. Both ends of the cable will be securely fastened to the reel with rot-resistant rope. Make sure that the last four (4) inches of the cable end are covered with waterproof tape, canvas, or muslin.

Reels will be completely enclosed with two (2) inch commercial lumber lagging.

Cable reels will be strapped with three (3), one (1) inch wide, corrosion-resistant steel straps or equivalent.

There will be a minimum clearance of one cable diameter between the inner face of the lagging and the waterproof wrapping material.

d. Marking.

(1) Normal. Cable shipping containers and reels are marked as prescribed in MIL-STD-129, MIL-C-915, and MIL-C-12000 and the applicable commodity specification. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings on cable reels (as applicable) are:

(a) Cable markings. The following information will be contained on a water resistant label:

- Cable type and size designation
- Name and location of the manufacturer
- Year of manufacture
- Specification number
- Progressive serial number
- National stock number

(b) Reel markings. The flanges of each reel or spool shall have identification plates with the following information:

- National stock number (NSN)
- Cable size and type
- Contract number
- Manufacturer's name and location
- "KEEP UPRIGHT. DO NOT LAY ON SIDE"

(c) Year Marking. In addition to required marking, reels will be marked with a keyed series of colors to indicate the year of manufacture. The colored stripe will be applied over the lagging or covering. In addition to the stripe, both flanges of the reel will be stenciled with figures to show the year of manufacture.

3.3.4 Handling

a. Special Handling Equipment and Tools. When loading reels with a forklift, use an adapter designed specifically for lifting reels. **DO NOT** use the lift forks for handling the reels. When handling the cable, wear gloves to prevent damage from grease. Weight and size of the reel or coil determine the lifting and moving capacity required.

b. Special Handling Procedures. Rigid coaxial transmission lines should not be lifted by the end. Handling the cable in this manner will distort it. Since lower temperatures make cable especially brittle, handling should be limited at temperatures below 35 ° F.

c. Safety Requirements. No special requirements.

3.3.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a			

a - Store cable in a dry, heated warehouse and keep away from sunlight, avoid high temperatures (120°F), weather, and large temperature fluctuations. **DO NOT** move cable from cold to warm locations. This will cause moisture absorption. **DO NOT** store cable outside. Cable cannot be adequately protected from temperature and moisture in an open, covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store cable where it will not be affected by material handling equipment, oil ,or grease, or pressure from other material. **DO NOT** store material on top of reels.

c. Shelf Life. Generally, electric cable, cord, and wire assemblies are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.3.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. Store reels with flanges vertical. Smaller reels may be stacked two high (flanges vertical) when racks or frames provide stability.

3.3.6 Transportation

a. General. Any mode of transportation can be used to transport cable. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Position large heavy reels of cable vertical on spool flanges. Reels must be secured to prevent shifting. Tie downs cannot be placed across cables. Cables cannot be placed on flat ends or stacked for shipment. Since lower temperatures make cable especially brittle, handling should be limited at temperatures below 35° F.

c. Loading. No special instructions.

d. Carriers. Transportation can be by truck, rail, water, or Air.

SECTION 3.4

3.4. Cable, Minesweeping

3.4.1 Receipt Inspection Requirements

a. Packaged equipment. Inspect equipment to make sure it meets Level A preservation-packaging and packing standards. Inspection shall be limited to a visual inspection of the markings and for damage, rotting, or insect infestation of the wood and rusting of steel. Report damage to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.4.2 Periodic Inspection

a. Periodicity. Inspect minesweeping cable every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing (see subparagraph 3.4.3). Make a note of the location and the damage.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect the cable for cuts and cracks in the insulation or bruises and damage caused by storage, dirt, oil, or other substances. Make a note of the location and the damage, if any.

If the cable is damaged, report the damage to the applicable MATREP or Inventory Manager.

After inspection, reseal the packaging and packing to prevent damage.

3.4.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Level A protection in accordance with NAS 3417 and MIL-C-17694. Preservatives are not used on magnetic minesweeping cable. Packaging of cable, cord and wire assemblies shall be accomplished in accordance with the requirements of the applicable commodity specification. Material is furnished wound on reels, spools or in coil form. Reels are designated as "single trip" and "reusable".

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.4.1.

c. Packing. Pack equipment in accordance with NAS 3417 and MIL-C-17694, Level A. The method of packing or loading of reels shall be accomplished in a manner that will ensure acceptance by carrier and will afford protection against physical or mechanical damage during shipment. Both ends of the cable will be securely fastened to the reel with rot-resistant rope. Make sure the last four (4) inches of the cable end is covered with waterproof tape, canvas, or muslin.

Cable reels will be strapped with three (3), one (1) inch wide, corrosion-resistant steel straps or equivalent.

There will be a minimum clearance of one cable diameter between the inner face of the lagging and the waterproof wrapping material.

NOTE: Type PQ/AQ assemblies and S cables with type K cables attached will be wound on separate reusable steel shipping reels.

Type K4 cables, when separate from cable assemblies, will be wound on wooden shipping reels of appropriate size. Type K4 cables will be strapped with two (2), one (1) inch wide, corrosion-resistant steel straps or equivalent.

d. Marking.

(1) Normal. Nomenclature and identification will be stenciled on each end of the reel in accordance with MIL-STD-129, NAS 3417 and MIL-C-17694. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings on containers of cable, cord and wire assemblies (as applicable) are:

(a) Cable markings. The following information will be clearly molded into the insulation over the terminal bands on both ends of type Q and S cables:

- Cable type and size designation
- Name and location of the manufacturer
- Year of manufacture
- Specification number
- Progressive serial number
- National stock number

(b) Reel markings. The flanges of each reel or spool shall have identification plates with the following information:

- National stock number (NSN)
- Cable size and type
- Contract number
- Manufacturer's name and location
- "KEEP UPRIGHT. DO NOT LAY ON SIDE"

(c) Year Marking. In addition to required marking, reels will be marked with a keyed series of colors to indicate the year of manufacture. The colored stripe will be applied over the lagging or covering. In addition to the stripe, both flanges of the reel will be stenciled with figures to show the year of manufacture.

3.4.5 Handling

a. Special Handling Equipment and Tools. When loading reels with a forklift, use a specifically designed adapter for lifting reels. **DO NOT** handle the reels using only the lift forks. When handling the cable, wear gloves to prevent damage from grease. Weight and size of the reel or coil determine the lifting and moving capacity required.

b. Special Handling Procedures. A forklift equipped with an adapter or a crane is required to handle magnetic minesweeping cables. Lift reels only with a lifting sling or a shaft through the reel hub. A spreader bar must be used between sides of the sling to prevent strain on reel flanges.

NOTE: REELS ARE NEVER TO BE HANDLED BY A FORKLIFT USING THE FORKS. Low temperature makes the cable especially brittle. Handling should be limited at temperatures below 35 °F.

c. Safety Requirements. No special safety requirements.

3.4.6 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a			

a - Exposure to sunlight or high temperature (above 100°F) for extended periods will cause deterioration of rubber. **DO NOT** move cable from cold to warm location. This will cause water absorption. Exposure to moisture will cause rusting of steel reels, and rotting of wood reels and fabric covering on electrodes. Reels of smaller cable types;

e.g., CL types, may be stacked two (2) high (flanges vertical). Reels of larger cable types (Q and S) should not be stacked. Store reels with flanges vertical. **DO NOT** store cable outside. Cable cannot be adequately protected from temperature and moisture in an open, covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store cable where it will not be affected by material handling equipment, oil or grease, or pressure from other material. **DO NOT** store other material on top of the reels.

c. Shelf Life. Any cable over two (2) years old is not in ready-for-issue (RFI) condition and should be reported to the applicable MATREP or Inventory Manager. See current shelf life directives.

d. Special Storage Requirements. Store reels with flanges vertical. **DO NOT** lay the reel on either flat end. **DO NOT** superimpose loads on cable reels.

3.4.7 Transportation

a. General. Position large heavy reels of cable vertical on spool flanges. Reels must be secured to prevent shifting. Tie downs cannot be placed across cables. Cables cannot be placed on flat ends or stacked for shipment. Since lower temperatures make cable especially brittle, handling should be limited at temperatures below 35°F. Loading should be in accordance with applicable carrier rules and regulations. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No special requirements.

c. Loading. When loading minesweeping cable **NEVER PLACE TIE DOWNS ACROSS THE CABLE**.

d. Carriers. Transportation may be by air, rail, water, or truck.

SECTION 3.5

3.5 Computers and Allied Equipment

3.5.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.5.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging (see subparagraph 3.5.3 a). Unpacked equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.5.2 Periodic Inspection

a. Periodicity. Inspect all equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.5.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to Method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion. Make a note of the location and damage, if any.

If the equipment is damaged; report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.5.3.

Replace desiccant and humidity indicators as required.

3.5.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Computer equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 50.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.5.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-E-17555. Nameplate data should be on stamped metal plate permanently affixed to equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special: Special markings used on containers of computers and allied equipment (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged computers the following marking should be adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil on container: "STORE RIGHT SIDE UP - WARNING - SEE PACKING INSTRUCTIONS". Stenciled adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Technical Manuals. The location of technical data should be marked on the packing list and shipping container.

(e) Fragile. The word "FRAGILE" will be marked on the container by labeling, stenciling, or stamping.

(f) Magnetic Materials. When magnetic material is packed, red labels with "MAGNETIC MATERIAL" in white letters shall be affixed on two opposite sides of the container.

(g) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(h) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.5.4 Handling

a. Special Handling Equipment and Tools. No special equipment or tools are required for handling this equipment.

b. Special Handling Procedures. Avoid putting pressure on container. Always use pallets or skids. Use spreader bars if lifting slings are used. Use care not to tilt or drop equipment.

c. Safety Requirements. There are no unusual personnel safety hazards associated with this equipment.

3.5.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a		b		

a - Store computers and allied equipments which are not packaged Method 50 in a controlled humidity area. This includes non-RFI equipments. **DO NOT** store this equipment outside.

b - Store computers and allied equipments that are packaged Method 50 in an unheated warehouse. **DO NOT** remove desiccant. Leave inspection ports accessible for periodic checks of humidity indicators.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. No unusual requirements.

c. Shelf Life. Generally, computers and allied equipment are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per paragraph 3.5.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. **DO NOT** superimpose loads.

3.5.6 Transportation

a. General. Any mode of transportation may be used to transport this equipment. However, the fragility of the equipment will require special shock mitigated transportation equipment. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Any unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. No unusual requirements. **DO NOT** superimpose loads.

d. Carriers.

(1) Over the Road. Use special shock mitigated enclosed vans. Ensure equipment is properly secured to prevent shifting or movement.

(2) Rail. Use special shock mitigated air cushioned boxcars. Ensure equipment is properly secured to prevent shifting or movement.

(3) Water. Use sea van containers, if possible. Ensure equipment is properly secured to prevent shifting or movement.

(4) Air. Units may contain magnetic materials.

SECTION 3.6.

3.6. Consoles, Displays and Control Units

3.6.1 Receipt and Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.6.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging (see subparagraph 3.6.3 a). Unpacked equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.6.2 Periodic Inspection

a. Periodicity. Inspect all consoles, displays, and control units annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing (see subparagraph 3.6.3). Make a note of the location and the damage.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.6.3.

Replace desiccant and humidity indicators as required.

3.6.3 Packaging/Preservation for Delivery

a. Preservation-Packaging. Console equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 50. Classified material may require further covering or packaging, depending on local storage conditions.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.6.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A. Special packing requirements are included when material is classified.

d. Marking.

(1) Special: Special markings used on containers of displays, consoles and control units (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION."

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE ELECTRICALLY CHARGED WITH HIGH VOLTAGE. EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Technical Manuals. The location of the technical data should be marked on the packing list and shipping container.

(e) Classified Shipments. Do not affix packing lists to the outside of classified material containers. Forward in accordance with Departmental regulations.

(f) Magnetic Materials. When packing magnetic material, affix red labels with "MAGNETIC MATERIAL" in white letters on two opposite sides of the container.

(g) Structural or Handling. Mark on exterior of shipping container signs saying "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE".

(h) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(i) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.6.4 Handling

- a. Special Handling Equipment and Tools. No special requirements.
- b. Special Handling Procedures. Ensure that slings are made fast at sling points.
- c. Safety Requirements. Observe safety precautions for handling heavy, delicate electronic equipment.

3.6.5 Storage

- a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a		b		

a - Equipment that should have Method 50 protection, but does not (includes non-RFI), should be stored in a controlled humidity area.

b - Correctly packaged material can be stored in unheated warehouses. **DO NOT** remove desiccant. Leave inspection ports accessible for periodic checks of humidity indicator.

NOTE

If equipment cannot be stored as required, store in an area that affords the best level of protection and inform the Inventory Manager.

b. Segregation. Store magnetic material and classified equipment in designated areas.

c. Shelf Life. Some resilient mounts have service/shelf lives. Check technical manuals for specifics.

d. Special Storage Requirements. None required.

3.6.6 Transportation

a. General. Ship classified materials in accordance with Department of Defense regulations. Any mode of transportation can be used to transport these materials. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Equipment is fragile and should have shock mitigated transportation. Unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. Use care not to break or damage equipment.

d. Carriers.

(1) Over the Road. Use covered van-type vehicles where possible.

(2) Rail. Use covered boxcars if possible.

(3) Water. Use containers where possible.

(4) Air. Units may contain magnetic materials.

SECTION 3.7

3.7 Electric Equipment, Non-Rotating

3.7.1 Receipt Inspection Requirements

a. Packaged equipment. Inspect equipment to make sure it meets Level A packaging and preservation standards. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.7.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging (see subparagraph 3.7.3 a). Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.7.2 Periodic Inspection

a. Periodicity. Inspect non-rotating electrical equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.7.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.7.3.

Replace desiccant and humidity indicators as required.

3.7.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Electric equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1. **DO NOT** use liquid preservatives on this equipment. Package all non-RFI equipment in reusable containers if possible.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.7.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Nomenclature and identification will be marked in accordance with MIL-STD-129 and MIL-E-17555. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers of packaged non-rotating electric equipment (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to method markings on all Method 50 containers: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(d) Technical Manuals. The location of the technical data should be marked on the packing list and shipping container.

(e) Fragile Equipment. The word "FRAGILE" shall be applied to the container by labeling, stenciling, or stamping.

(f) Structural or Handling. Mark on the exterior of the shipping container the words: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(g) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(h) Container Orientation. The words "THIS END UP", together with an arrow indicating the top of the container, should be stenciled on all sides of the container.

3.7.4 Handling

a. Special Handling Equipment and Tools. No special equipment or tools required for this equipment.

b. Special Handling Procedures. No special requirements. Use extra care, however, with fragile items.

c. Safety Requirements. No personnel safety hazards related to this material.

3.7.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged, Method 20 or 50, can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

d - Equipment that requires, but that does not have, Method 10 protection can be stored in an unheated warehouse.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. Equipment that should have Method 20 or 50 protection, but does not, should **NOT** be stored outside. Equipment stored outside cannot be protected from temperature and moisture.

b. Segregation. No unusual requirements.

c. Shelf Life. Most non-rotating electric equipment is considered non-deteriorative, however some items have a limited shelf life. Consult cognizant Inventory Manager if requirements are unknown.

d. Special Storage Requirement. Store equipment where it will not be affected by material handling equipment, oil or grease, or pressure from other material. **DO NOT** superimpose loads on fragile equipment.

3.7.6 Transportation

a. General. Any mode of transportation can be used to ship this material. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Unique or unusual requirements should be referred to appropriate Transportation Officer for resolution.

c. Loading. No unusual requirements. Give extra care to fragile items.

d. Carriers.

(1) Over the Road. Use covered van-type vehicles.

(2) Rail. Use enclosed boxcars.

(3) Water. Use sea van containers.

(4) Air. Refer to the carrier for additional requirements.

SECTION 3.8

3.8. Electric Equipment, Rotating

3.8.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect equipment to make sure it meets Level A preservation-packaging and packing standards. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.8.3 d) for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for any obvious signs of damage, deterioration, distortion, or the lack of any anchoring hardware, blocks and braces, and any other kind of protective devices utilized to prevent damage to equipment during its handling and storage. Inspect equipment for the presence of obvious damage to its preservation and packaging. See subparagraph 3.8.3 a (1). Unpackaged equipment must be secured to a pallet, box, or crate to prevent damage from occurring during its handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.8.2 Periodic Inspection

a. Periodicity. Inspect all rotating electric equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. Since the packing and packaging material must be reused, care must be exercised not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks; gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the appropriate MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.8.3.

Replace desiccant and humidity indicators as required.

NOTE Centrifugal and vaneaxial fan motors require a minimum of 15 revolutions every three (3) months to redistribute the grease within the bearings.

3.8.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Rotating electric equipment requires Level A protection in accordance with MIL-E-16298. Preserve rotating electric equipment in accordance with MIL-STD-2073-1, Methods 20, 30 and 40. Equipment preservation-packaging method 20, 30 and 40 (including appropriate submethods) should have a thin preservative film applied to all external metal surfaces. Cover all openings to the equipment's interior with pressure-sensitive tape conforming to ASTM D5486. Coat external shafts and rigid couplings with preservative grease and over-wrap with greaseproof barrier material.

(1) Noise tested units should always be shipped in the mount protection devices in which the manufacturer shipped them. If these original devices are not available, the packer must devise a way to immobilize the resilient mounts in an unstrained position and to protect them from damage.

(2) Electric motors or generators which are turned in unpackaged must be anchored to a pallet or skid for handling or storage. Smaller units may be cushioned in an open container.

(3) Ship's service turbo generators (SSTGs) require special base handling brackets. SSTGs for Trident submarines require outriggers to provide support to base.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If the shipping activity does not have the capability to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.8.1.

c. Packing. Packing shall be in accordance with MIL-E-16298, Level A.

d. Marking:

(1) Normal. Container markings are in accordance with MIL-STD-129 and MIL-E-16298. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers of electric motors and generators (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged equipment, the following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These instructions will be secured to the outside of the container in a protected package and location.

(e) Noise-Tested Equipment. Containers for noise-tested units will be marked: "SENSITIVE, NOISE-TESTED UNIT. HANDLE WITH CARE." The words "THIS END UP" together with an arrow indicating the top of the container will be stenciled on all sides of the container. For additional information see MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment."

(f) Technical Manuals. The location of the technical data should be marked on the packing list and shipping container.

(g) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(h) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.8.4 Handling

a. Special Handling Equipment and Tools. Some electric motors and generators will require special heavy lift equipment to handle. SSTGs require special base handling brackets. SSTGs for Trident submarines require outriggers to provide support to base.

b. Special Handling Procedures. Handle heavy duty motors and generators by attaching lifting straps to special designated lift points designated by manufacturer. Ensure noise-tested units and SSTGs are handled with special care.

c. Safety Requirements. No special requirements.

3.8.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store motors and generators that should have Method 50 protection, but do not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment that should have Method 20 protection, but does not, in a heated warehouse.

c - Store motors and generators that are packaged Method 20 or 50 in an unheated warehouse. **DO NOT** remove desiccant from Method 50 protected equipment. Leave inspection ports accessible for periodic checks of humidity indicators.

d - Equipment which should be packaged Method 10, but is not, should be stored in an unheated warehouse.

e - Equipment correctly packaged Method 10 can be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store equipment that should be packaged Method 20 or 50, but is not, outside.

b. Segregation. Store equipment where it will not be affected by material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Generally, rotating electric equipment is considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.8.2. Consult the MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. **DO NOT** superimpose loads unless specified. When required, motor space heaters shall be used for both outside and inside storage. The motor space heater shall be mounted inside the motor and be a single phase 110V unit.

3.8.6 Transportation

a. General. Electric motors and generators may be shipped by any mode. However, the size and weight of some generators may seriously restrict the type vehicle that can be used to transport them. Special permits may be required by state and local governments for over-the-road and right-of-way clearances. Unpacked equipment and equipment packed in open crates or boxes, that will be exposed to the environment during transit, shall be secured and covered with a waterproof shroud or cover.

b. Special. SSTGs require special base handling brackets. SSTGs for Trident submarines require outriggers to provide support to base. Any unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. Use special lift points when and where designated to load and unload electrical motors and generators. Block and brace as necessary.

d. Carriers.

(1) Over the Road. Heavy duty motors and generators will require heavy duty "lowboy" trailers. SSTGs must be shipped with special base handling brackets. SSTGs for Trident submarines must be shipped with outriggers to support the base.

(2) Rail. Special heavy duty rail cars will be required for large motors and generators. SSTGs must be shipped with special base handling brackets. SSTGs for Trident submarines must be shipped with outriggers to support the base.

(3) Water. Large motors and generators will require barge or break bulk carrier.

(4) Air. Will require weight distributing trailers or skids to airship large motors or generators.

SECTION 3.9

3.9 Electronic Equipment and Components

3.9.1 Receipt Inspection requirements

a. Packaged Equipment. Inspect equipment to make sure it meets Level A preservation-packaging and packing standards. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.9.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.9.3 a. Unpacked equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.9.2 Periodic Inspection

a. Periodicity. Inspect all electronic equipment and components annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.9.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for any obvious signs of damage, deterioration, or distortion. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.9.3.

Replace desiccant and humidity indicators as required.

3.9.3 Packaging/Preparation for Delivery

NOTE: Many electronic/electrical components require “Electrostatic Discharge” (ESD) protection. If unsure if an item is ESD sensitive, consult the inventory manager or MIL-HDBK-773 to determine if a particular component is ESD sensitive and requires special packaging. Packaging of ESD sensitive components is in accordance with MIL-HDBK-263 and MIL-HDBK-773.

a. Preservation-Packaging. Equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1. Table I of MIL-E-17555 provides specific packaging requirements for electronic equipment. Generally, electronic equipment does not require the use of contact preservatives. All electronic equipment and components require complete protection from the elements. Most items are fragile and should be protected by special reusable containers. If equipment is turned in, store the equipment on special cushioned pallets. If non-RFI equipment is to be shipped, the minimum packaging is Method 50. Use safeguards established by security manuals to package and store classified technical manuals.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.9.2.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A. Include special packing requirements when shipping classified material.

d. Marking.

(1) Normal. Marking shall be in accordance with MIL-STD-129 and MIL-E-17555. Equipment nameplate data should be on a stamped metal plate permanently affixed to the equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings to be used on containers of electronic equipment and components (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Magnetic Materials. When magnetic material is packed, red labels with "MAGNETIC MATERIAL" in white letters shall be affixed on two opposite sides of the container.

(e) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label. The words "THIS END UP", together with an arrow indicating the top of the container, shall be stenciled on all sides of the container:

(f) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(g) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(h) Sensitive Electronic Devices. All "electrostatic discharge" sensitive devices shall be marked in accordance with MIL-STD-129.

(i) Shelf Life. Adjacent to the standard MIL-STD-129 markings shall be marked the type of shelf life and the expiration date.

3.9.4 Handling

a. Special Handling Equipment and Tools. No special equipment or tools are required to handle this equipment.

b. Special Handling Procedures. Handle classified equipment and technical manuals in accordance with directives. Equipment is fragile - **HANDLE WITH CARE**. Larger equipment will have anchoring points for moving the crated equipment. Use

pallets and spreader bars to prevent damage during handling. **DO NOT** handle any unpackaged electronic equipment without a pallet.

c. Safely Requirements. No special safety requirements.

3.9.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged, Method 20 or 50, can be stored in an unheated warehouse. However, **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

d - Equipment that requires, but does not have, Method 10 protection can be stored in an unheated warehouse.

e - Equipment packaged Method 10 may be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, it should be stored in an area that affords the next best level of protection. The Inventory Manager should then be so informed. Equipment that should have Method 20 or 50 protection, but that does not, should **NOT** be stored outside.

b. Segregation. Store electronic equipment and components where they will not be affected by impact from material handling equipment, oil or grease, or pressure from other material. Store magnetic electronic material and classified equipment in designated storage areas.

c. Shelf Life. Most electronic equipment and components are considered non-deteriorative, however some items have a limited shelf life. Consult the cognizant Inventory Manager if requirements are unknown.

d. Special Storage Requirements. **DO NOT** superimpose loads on equipment while in storage.

3.9.6 Transportation

a. General. All modes of transportation can be used to ship this equipment. However, the fragility of the equipment may require special shock mitigated equipment. **DO NOT** superimpose loads. Mail or ship classified technical manuals under separate cover. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Ship classified material in accordance with Departmental Regulations. Any unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. No unusual requirements.

d. Carriers.

(1) Over the Road. Use special shock mitigated enclosed vans. Ensure equipment is properly secured to prevent shifting or movement.

(2) Rail. Use special air cushioned rail cars. Ensure equipment is properly secured to prevent shifting or movement.

(3) Water. Use sea van containers if possible. Ensure equipment is properly secured to prevent shifting or movement.

(4) Air. No unusual requirements. Handle with care.

SECTION 3.10

3.10 Instruments, Test; Indicating Equipment; and Meters

3.10.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect equipment to make sure it meets Level A preservation-packaging and packing standards. Inspect packaged equipment containers for presence and legibility of markings (see paragraph 3.10.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See paragraph 3.10.3 a. Unpacked equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.10.2 Periodic Inspection

a. Periodicity. Inspect all equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.10.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing, as required, to return to the requirements of subparagraph 3.10.3.

Replace desiccant and humidity indicators as required.

3.10.3 Packaging/Preparation for Delivery

a. Preservation Packaging. Equipment requires Level A protection. Preservation-packaging will be in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 50. Generally, contact preservatives are not required for test instruments or indicating equipment.

NOTE: Electronic and electrical indicators require Level A protection and preservation/packaging in accordance with MIL-E-17555 and MIL-STD-2073-1 Method 30.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.10.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-E-17555. Equipment name plate data should be on a stamped metal plate permanently affixed to the equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings to be used on containers (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Magnetic Materials. When magnetic material is packed, red labels with "MAGNETIC MATERIAL" in white letters shall be affixed on two opposite sides of the container.

(f) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(g) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(h) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container should be stenciled on all sides of the container.

(i) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.10.4 Handling

a. Special Handling Equipment and Tools. No special equipment or tools are required to handle this equipment.

b. Special Handling Procedures. No special requirement. Equipment is fragile **HANDLE WITH CARE.**

c. Safety Requirements. No special safety requirements.

3.10.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment. **DO NOT** store equipment outside.

c - Equipment that is correctly packaged Method 20 or 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic inspections.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store magnetic material and classified equipment in designated storage areas. Store equipment where it will not be affected by material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Generally, test instruments, indicating equipment, and meters are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per paragraph 3.10.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. **DO NOT** superimpose loads on equipment while in storage.

3.10.6 Transportation

a. General. All modes of transportation can be used to ship this equipment. However, the fragility of the equipment may require special shock mitigated equipment. **DO NOT** superimpose loads. Mail or ship classified technical manuals under separate cover. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Ship classified material in accordance with Department of Defense regulations. Any unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. No unusual requirements..

d. Carriers.

(1) Over the Road. If possible, use air-ride covered vans that are humidity and temperature controlled. Make sure equipment is adequately secured to prevent movement.

(2) Rail. Use special air-cushioned rail cars. **DO NOT** hump. Make sure equipment is adequately secured to prevent movement.

(3) Water. Use cushioned containers. Make sure equipment is adequately secured to prevent movement.

(4) Air. Equipment must be anchored to a skid to prevent movement.

SECTION 3.11

3.11 Transducers, Sonar

3.11.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.11.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing. Report all damage, insufficient preservation-packaging, and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpacked equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.11.3 a. Unpacked equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.11.2 Periodic Inspection

a. Periodicity. Inspect all sonar transducers every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.12.3. Make a note of any damage and its location.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., warpage, cracks, gouges, bent and distorted surfaces, etc.). Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.11.3.

3.11.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Transducer equipment requires Level A protection. Preservation/packaging will be in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 10. Transducers must be packaged with an ultraviolet ray barrier.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per paragraph 3.11.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A. Repair and reuse the existing container, or provide a new container in accordance with the criteria of MIL-E-17555, or technical handbook or drawings, if available. Containers are of the multiple use (reusable) construction. Assembly is accomplished by means of screws, bolts, and similar hardware items. Transducers turned in unpackaged should be cushioned and anchored to pallets or skids for handling or storage.

d. Marking.

(1) Normal. Nomenclature and identification will be stenciled on the exterior pack in accordance with MIL-STD-129 and MIL-E-17555. Nameplate data should be on a stamped metal plate permanently affixed to the equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on packaged equipment (as applicable) are:

(a) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(b) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(c) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(d) Fragile. Sonar transducers, fragile items, will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(e) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.11.4 Handling

- a. Special Handling Equipment and Tools. None required.
- b. Special Handling Procedures. **HANDLE WITH CARE**. Equipment is fragile.

c. Safety Requirements. If rubber coverings on facings contain Tri-N-Butyl-Tin Oxide (TBTO), be cautious of handling barrier wrappings as TBTO is suspected of being a carcinogen.

3.11.5 Storage

- a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
		a	b	

a - Equipment that requires, but does not have, Method 10 protection, can be stored in an unheated warehouse.

b - Equipment packaged Method 10 may be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store transducers in direct sunlight.

- b. Segregation. Not required.
- c. Shelf Life. Shelf life for sonar transducers varies. Check with the Inventory Manager for the shelf life of specific transducers.
- d. Special Storage Requirements. Store in well ventilated space. **DO NOT** store in direct sunlight.

3.11.6 Transportation

- a. General. Sonar transducers may be shipped by any mode. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the

environment during transit shall be secured and covered with a waterproof shroud or similar cover.

b. Special. Protect from direct sunlight. Insure transducers have an ultraviolet ray barrier and that it is intact.

c. Loading. No special requirements.

d. Carriers. Shipment may be by rail, water, truck or air.